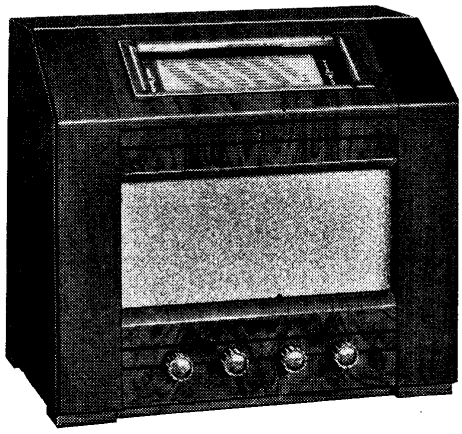
AERODYNE 284 BAND-PASS BATTERY 3



The Aerodyne 284 is a band-pass battery three giving all-wave reception on four bands.

CIRCUIT.—The aerial input circuit has two connections, one of which places a series aerial condenser into operation. The aerial is coupled to the grid of V1, a pentode operating as the H.F. amplifier, by a set of band-pass coils on the medium and long wavebands. On the two short wavebands the coupling is by H.F. transformer aerial coils, and on S.W.1 a coupling condenser is included between the aerial and the primary of the H.F. transformer.

The volume control operates so as to vary the bias applied to the grid of V1. Bias is obtained by a potentiometer between H.T. negative and L.T. negative.

V1 is tuned anode coupled to V2, a triode operating as the demodulator. Reaction is obtained from the anode in conjunction with a set of reaction windings, and is controlled by a variable condenser.

V2 is resistance fed, auto-transformer coupled to the output pentode V3. Bias for this valve is also obtained from a potentiometer connected in parallel with the bias potentiometer of V1. The speaker matching transformer in the anode circuit of V3 has a condenser and resistance across the primary to modify the tone.

Power is supplied by a 130-volt. H.T. battery of standard capacity and a 2-volt accumulator.

Chassis Removal.—The cabinet has a false bottom, removal of which enables the underside of the chassis to be inspected and trimmers adjusted.

To remove the chassis, take out the two screws securing the back of the cabinet and set the gang to maximum capacity. Remove the four control knobs (grub screw). Take out the four chassis-securing bolts from the base of the cabinet, then turn the cabinet back to its usual upright position and remove dial lights reflector strip.

Unhook the waveband indicator switch cord from the indicator and unhook the pointer drive cord from the drum of the gang condenser.

The chassis can then be withdrawn from the cabinet and is sufficiently free for service purposes. For complete removal, the two leads to the speaker must be unsoldered (or the speaker removed), the extension speaker panel removed from the side of the cabinet and the dial light leads uncleated and holders detached from their mountings.

To reassemble the cord drive, fit the spring on the left-hand lug on the drum and connect the end of the cord to the spring. Wind the cord once round drum, bring it over the lowest left-hand pulley, then over to the right-hand pulley, and fit on pointer carrier (thumb-nut fixing). Then pass the cord over highest left-hand pulley and down to the drum, encircling

VALVE READINGS

No signal. Volume maximum. No reaction. Bottom M.W. band. 127 volts. H.T.

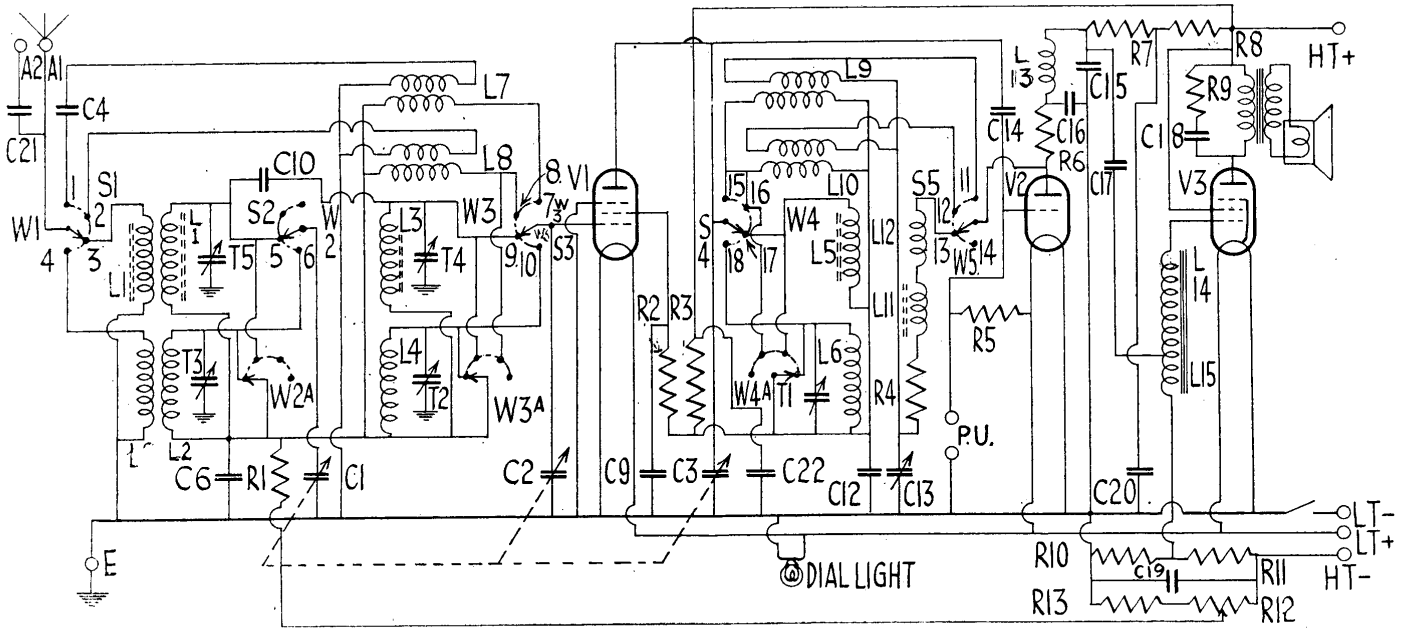
V.	Type.	Electrode.	Volts.	Ma.
1	(All Mullard) V.P.2.md.(7) ..	Anode ..	105	2.7
		Screen ..	100	.6
2	P.M.2.H.L. (4)	Anode ..	100	1.1
3	P.M.22.A. (5) ..	Anode ..	105	5.9
		Screen ..	112	1

RESISTANCES

R.	Purpose.	Ohms.
1	V1 bias decoupling	30,000
2	V2 screen decoupling ..	2,000
3	V1 anode decoupling ..	2,000
4	Regeneration modifier ..	1,000
5	V2 grid leak	2 meg.
6	H.F. stopper	5,000
7	V2 anode load	30,000
8	V2 anode decoupling ..	10,000
9	Tone control (fixed). . ..	20,000
10	V3 bias potr. (part). . ..	380
11	V3 bias port. (part). . ..	1,000
12	Volume control and V1 bias potr. (part)	10,000
13	V1 bias potr. (part). . ..	200

CONDENSERS

C.	Purpose.	Mfds.
4	S.W.1 aerial coupling ..	.00003
6	Bottom band pass coupling	.05
9	V1 screen decoupling ..	.1
10	Top band pass coupling ..	.000003
12	V1 anode decoupling ..	.1
14	V1 anode coupling	.00003
15	H.F. bypass	.001
16	H.F. bypass	.0003
17	L.F. coupling	.1
18	Tone control	.01
19	Bias potr. shunt	25
20	V2 anode decoupling ..	1
21	Series aerial	.001
22	H.T. shunt	1



Reception on two short-wave bands in addition to medium and long is provided by the circuit arrangement of the Aerodyne 234. Basically the circuit is quite orthodox.

it once, then through the aperture and hook on to the spring secured to right-hand lug on the drum.

Special Notes.—Two aerial sockets are provided at the rear of the chassis, A2 placing a series aerial condenser into circuit.

A pair of sockets at the rear of the chassis enable a pick-up to be connected. Two sockets on an insulating panel on the rear left-hand side of the cabinet enable the speech coil of an extension speaker to be connected.

There are two dial lights mounted in screw-in holders located one each side of the wavelength dial. They are Osram bulbs rated at 2.5 volts .2 amp., and are fitted with M.E.S. bases.

C10 is formed by a piece of wire wound (at both ends) round the two wires thereby coupled.

Circuit Alignment Notes

Connect an output meter across the primary of the speaker transformer and a service oscillator to A1 and E sockets. Set the volume control to maximum and increase the reaction sufficiently to obtain signals, but not enough to make the set oscillate.

Long Waves.—Tune set and oscillator to 1,300 metres (230 kc.) and adjust first T1 and then T2 and T3 for maximum response.

Medium Waves.—Tune set and oscillator to 210 metres (1,476 kc.) and adjust T4 and then T5 for maximum response.

Short Waves.—There are no separate trimming adjustments to be made.

WINDINGS

Winding.	Ohms.	Winding.	Ohms.
L1 primary ..	.3	L7 secondary..	.1
L1 secondary ..	1.3	L8 primary ..	.3
L2 primary ..	15.3	L8 secondary..	.2
L2 secondary ..	14.6	L9 primary ..	.4
L3	1.3	L9 secondary	.1
L4	13.5	L10 primary ..	.6
L5	1.2	L10 secondary	.2
L6	14.6	L13	323
L7 primary ..	.7	L14	3,380
		L15	1,080

BATTERY TESTING

JOHN M. O'TOOLE, of Dublin, writes : Here is an interesting example of a good high-resistance voltmeter not being as efficient as a cheap low-resistance one.

A customer bought a high-tension battery, but returned it almost immediately, as it would not work the set. Our junior assistant, who is never allowed to tamper with the expensive service gear, tested the voltage on a cheap meter and discovered that there was only 60 volts present instead of 120. On returning the battery to the manufacturers they informed us it was perfect, as it showed up 120 volts on their high-resistance meters.

On examination, verdigris was found under the 120-volt terminal, causing a resistance which only permitted a current of 2 or 3 m.a. The high-resistance meter, of course, only required one m.a. for full-scale deflection, whereas the cheap meter and our customer's set required at least 6 m.a.

It comes down to the old rule : Batteries should always be tested on load. The ideal for battery tests would be a high-resistance meter with a shunt resistance calculated to take 5-10 m.a. from the battery.

Aerodyne 284 on Test

MODEL 284.—Standard model for battery operation requiring a 130-volt H.T. battery and a 2-volt accumulator. Price, 8 gns.

DESCRIPTION. — Four-band, battery operated table model "straight" receiver.

FEATURES.—Full-vision scale with wavebands coloured. Wave selection indicated by coloured strips visible through slot at side of scale. Concentric tuning, reaction and combined volume and master switch. Iron-core coils. Sockets for pick-up and external L.S. Alternative aerial sockets.

LOADING.—H.T., 9 ma.; L.T., .75 amp.

Selectivity and Sensitivity

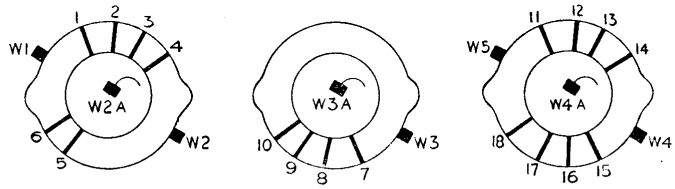
SHORT WAVES (13-49 and 48-170 metres).—Easy handling, with adequate selectivity when making full use of separate volume and reaction controls. Gain representative.

MEDIUM WAVES (160-550 metres).—Good selectivity and sensitivity. Very easy separation of local stations and no difficulty in obtaining stations between them. Gain and selectivity well maintained over the band.

LONG WAVES (700-2,000 metres).—Representative performance for the valve combination used. All main stations easily received and no bad spread from Droitwich.

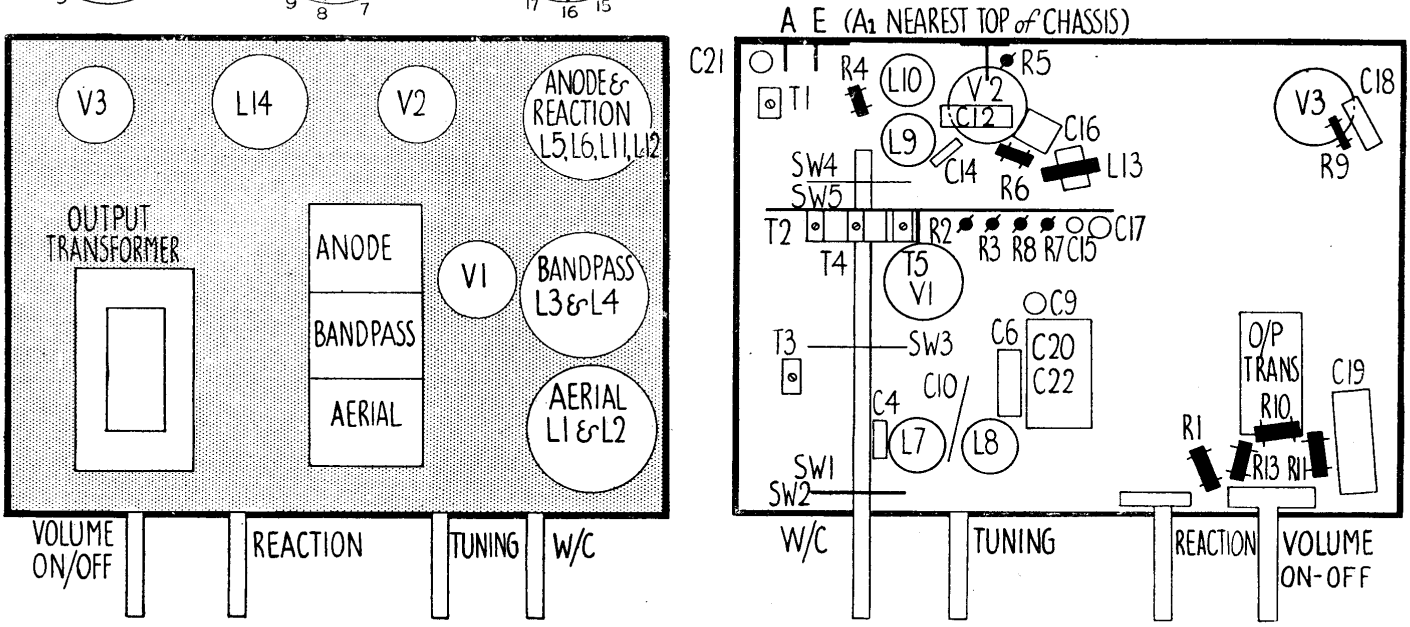
Acoustic Output

Good performance for a battery pentode output. Tone well balanced, with pleasing reproduction on speech and music.



The switch banks of the 284. Left to right they are : SW1 and SW2 together; centre, SW3 ; SW4 and SW5 together.

A CONDENSER made by A. H. Hunt, Ltd., of Garratt Lane, Wandsworth, London, S.W.18, is used in the Aerodyne 284. This is unit 2984 for C19, and the replacement is listed at 1s. 6d. retail.



Simple and orderly construction is found in these chassis layout diagrams of the Aerodyne 284. The top "deck" diagram is tinted.